$$\int_{y=-3}^{3} \int_{x=0}^{\pi/2} \left(y + y^2 \cos(x)\right) dx\, dy$$

$$= \int_{y=-3}^{3} \left[xy + y^2 \sin(x) \right]_{x=0}^{\pi/2} dy$$

$$= \int_{y=-3}^{3} \left(\left(\frac{\pi}{2} - 0\right) y + (1 - 0) y^2 \right) dy$$

$$= \int_{y=-3}^{3} \left(\frac{\pi}{2} y + y^2 \right) dy$$

$$= \left[\frac{\pi}{4} y^2 + \frac{1}{3} y^3 \right]_{y=-3}^{3}$$

$$= \frac{\pi}{4}(9 - 9) + \frac{1}{3}(27 - (-27))$$

$$= 18$$

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